

## OUTPUT GEAR CASE

## Removal/Installation

1. Remove the engine and disassemble the crankcase as described in Chapter Four.
2. Disassemble the transmission as described in this chapter.

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3. Remove the bolts (Figure 65) securing the output case to the crankcase and remove the output case. Don't lose the oil control orifice and O-ring seal and the locating dowel.
4. Install by reversing the removal steps while noting the following.
5. Install a new O-ring seal on the oil control orifice.
6. Install the oil control orifice, O-ring seal (A, Figure 66) and the locating dowel (B, Figure 66) into the left-hand crankcase half.
7. Apply a light coat of fresh engine oil to the O-ring seal on the output gear case and install the case into the left-hand crankcase half.
8. Install the bolts (Figure 65) securing the output gear case and tighten in a crisscross pattern to 32 N·m (23 ft.-lb.).

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## Disassembly/Inspection/Assembly

The output gear case requires a considerable number of special Honda tools for disassembly, adjustment and assembly of the unit. The price of all of these tools could be more than the cost of most repairs or seal replacement.

Figure 67 shows all of the internal components of the output gear case.

1. Inspect the splines (A, Figure 68) on the output shaft where it mates with the universal joint. If they are worn or damaged, the cross-shaft assembly must be replaced.

## NOTE

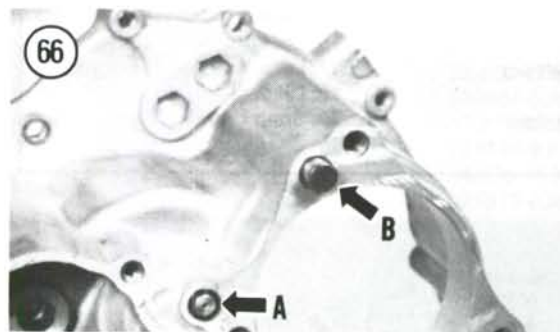
*If the splines are damaged also inspect the splines of the universal joint; it may also need to be replaced.*

2. Inspect the O-ring seal (Figure 69) on the output gear case. Replace if it is starting to deteriorate or harden.
3. Make sure the rear bearing holder bolts (B, Figure 68) are tight and that there are no oil leaks.
4. Check the housing for signs of cracks or damage.

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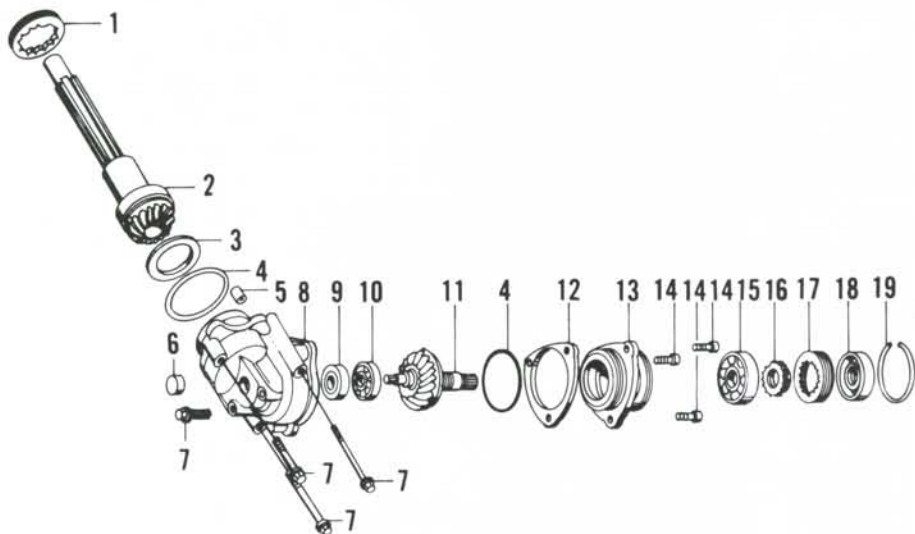


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OUTPUT GEAR CASE

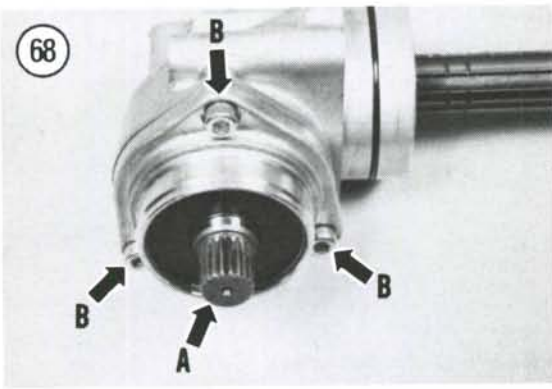


- 1. Locknut
- 2. Cross shaft set
- 3. Shim
- 4. O-ring seal
- 5. Dowel pin
- 6. Cap
- 7. Bolt

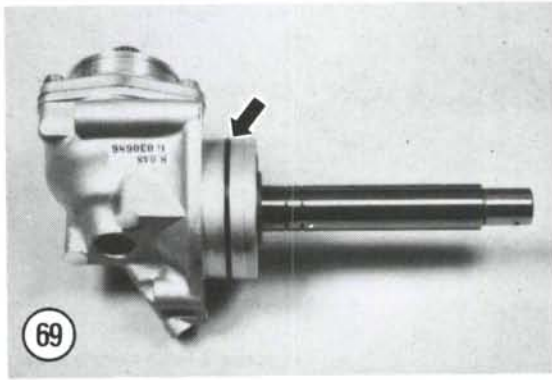
- 8. Gear case
- 9. Oil seal
- 10. Bearing
- 11. Cross shaft set
- 12. Shim
- 13. Bearing holder

- 14. Bolt
- 15. Bearing
- 16. Locknut
- 17. Locknut
- 18. Oil seal
- 19. Snap ring

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**Table 1 TRANSMISSION SPECIFICATIONS**

Item	Specification	Wear limit
<b>Transmission gears ID</b>		
Main shaft		
4th gear	25.000-25.021 mm (0.9843-0.9851 in.)	25.05 mm (0.986 in.)
5th gear	20.020-20.041 mm (0.7882-0.7890 in.)	20.09 mm (0.791 in.)
Countershaft		
1st, 2nd & 3rd gears	28.020-28.041 mm (1.1031-1.1040 in.)	28.07 mm (1.105 in.)
Reverse gear	28.021-28.041 mm (1.1032-1.1040 in.)	28.07 mm (1.105 in.)
Reverse idle gear	18.000-18.021 mm (0.7087-0.7095 in.)	18.05 mm (0.711 in.)
<b>Transmission shaft OD</b>		
Main shaft		
4th gear bushing (Dimension A)	21.959-21.980 mm (0.8645-0.8654 in.)	21.93 mm (0.863 in.)
5th gear bushing (Dimension B)	16.983-16.994 mm (0.6686-0.6691 in.)	16.95 mm (0.667 in.)
Reverse idle shaft	13.966-13.984 mm (0.5498-0.5506 in.)	13.93 mm (0.548 in.)
<b>Transmission gear bushing OD</b>		
Main shaft		
4th gear	24.959-24.980 mm (0.9826-0.9835 in.)	24.93 mm (0.981 in.)
5th gear	19.959-19.980 mm (0.7858-0.7866 in.)	19.93 mm (0.785 in.)
Countershaft		
1st gear	27.984-28.005 mm (1.1017-1.1026 in.)	27.93 mm (1.100 in.)
2nd & reverse gears	27.979-28.000 mm (1.1015-1.1024 in.)	27.93 mm (1.100 in.)
3rd gear	27.984-28.005 mm (1.1017-1.1026 in.)	27.93 mm (1.100 in.)
Reverse idle gear	17.966-17.984 mm (0.7073-0.7080 in.)	17.93 mm (0.706 in.)
<b>Transmission gear bushing ID</b>		
Main shaft		
4th gear	22.000-22.021 mm (0.8661-0.8670 in.)	22.05 mm (0.868 in.)
5th gear	17.016-17.034 mm (0.6699-0.6706 in.)	17.06 mm (0.672 in.)
Reverse idle gear	14.000-14.025 mm (0.5512-0.5522 in.)	14.05 mm (0.553 in.)
<b>Transmission gear to bushing clearance</b>		
Main shaft		
4th gear	0.020-0.062 mm (0.0008-0.0024 in.)	0.10 mm (0.004 in.)
5th gear	0.036-0.075 mm (0.0014-0.0030 in.)	0.10 mm (0.004 in.)
Countershaft		
1st & 3rd gears	0.015-0.057 mm (0.0006-0.0022 in.)	0.10 mm (0.004 in.)
2nd & reverse gears	0.020-0.062 mm (0.0008-0.0024 in.)	0.10 mm (0.004 in.)
Reverse gear	0.016-0.055 mm (0.0006-0.0022 in.)	0.10 mm (0.004 in.)

(continued)

**Table 1 TRANSMISSION SPECIFICATIONS (continued)**

Item	Specification	Wear limit
Transmission bushing to shaft clearance		
Main shaft		
4th gear	0.020-0.062 mm (0.0008-0.0024 in.)	0.10 mm (0.004 in.)
5th gear	0.022-0.051 mm (0.0009-0.0020 in.)	0.10 mm (0.004 in.)
Reverse idle gear	0.016-0.059 mm (0.0006-0.0023 in.)	0.10 mm (0.004 in.)

**Table 2 INTERNAL SHIFT MECHANISM SPECIFICATIONS**

Item	Specification	Wear limit
Shift fork finger thickness	4.93-5.00 mm (0.194-0.197 in.)	4.50 mm (0.177 in.)
Shift fork shaft OD	12.966-12.984 mm (0.5105-0.5112 in.)	12.96 mm (0.510 in.)
Shift fork ID	13.00-13.02 mm (0.5118-0.5126 in.)	13.04 mm (0.513 in.)

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